

Appl. No. 10/720,812
Amdt. Dated August 3, 2006
Reply to Final Office action of June 2, 2006

REMARKS/ARGUMENTS

Claims 1-48 are pending in the present application.

This Amendment is in response to the Final Office Action mailed June 2, 2006 to support a Request for Continued Examination (RCE) concurrently filed. In the Final Office Action, the Examiner rejected claims 9-12, 15-20, 23, and 24 under 35 U.S.C. §102(b). Applicants have amended claims 9-11, and 17-19. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Restriction Requirement

In the Final Office Action, the Examiner contends that it is proper to treat the passive element, a capacitor, and an inductor as three separate species (Final Office Action, page 4). Applicant respectfully disagrees. Claims 13 and 14 only provide additional limitations to the passive element. Therefore, they do not represent distinct or independent inventions. There are two criteria for a proper requirement for restriction between patentably distinct inventions: (A) The inventions must be independent or distinct as claimed; and (B) There would be a serious burden on the examiner if restriction is not required. MPEP 803. Here, the Examiner agrees that a passive element may be an inductor or a capacitor. Therefore, the inventions are not independent or distinct. The restriction, therefore, is improper.

Rejection Under 35 U.S.C. § 102

In the Final Office Action, the Examiner rejected claims 9-12, 15-20, and 23-24 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,821,624 issued to Pasch et al. ("Pasch"). Applicants respectfully traverse the rejection and contend that the Examiner has not met the burden of establishing a prima facie case of anticipation.

Pasch discloses a semiconductor device assembly technique using preformed planar structures. A programmable interposer may use embedded electronic switches because any electronic element, active or passive, may be embedded in the interposer (Pasch, col. 24, lines 34-42). An adhesive may be used to keep the substrate/interposer/ die stack under compression (Pasch, col. 25, lines 22-25). The interposers with their associated probe finger contacts may provide electrical contact with the solder bumps on a facing die (Pasch, col. 24, lines 54-56).

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Pasch does not disclose, either expressly or inherently, at least one of (1) a thin-film passive element integrated on a spacer between upper and lower dies in stacked dies on a package substrate, and (2) conductors attached to the passive element to connect the passive element to at least one of the upper and lower dies.

Pasch merely discloses an assembly of a die 1110 to a substrate 1130 includes an interposer 1120 (Pasch, col. 20, lines 7-10), not stacked dies. Furthermore, Pasch does not disclose the stacked dies on a package substrate. Pasch merely discloses two similar-size dies being flip-chip assembled with a traced interposer disposed between them to form an assembly (Pasch, col. 23, lines 29-32). A flip-chip assembly is not stacked dies on a package substrate. Applicants note that the phrase substrate/interposer/die stack used in Pasch (Pasch, col. 25, lines 22-24) merely indicates a stack of a substrate, an interposer and a die. This is clearly different from a stack of dies on a package substrate, or stacked dies, which include a number of dies stacking on each other placed on a package substrate.

Moreover, Pasch does not disclose or suggest a thin-film passive element. Regarding claim 11, the Examiner contends that the element may be a thin film, citing "thin metal film" in column 26, line 16. However, a thin metal film is not a thin-film passive element. It is a metal element. Pasch specifically discloses that the thin film of a noble metal is incorporated into the holes of the interposer to galvanically isolate the bumps of the chip from those of the substrate (Pasch, col. 25, lines 58-61). Therefore, this thin-film metal cannot be a thin-film passive element. Claims 9, 11, 17, and 19 have been amended to clarify these aspects of the invention.

Regarding claim 17, the Examiner contends that Pasch teaches a plurality of stacked dies and a spacer assembly, citing Figure 11B and col. 24, lines 39-41. Applicants respectfully disagree. Figure 11B merely shows the die 1110, the interposer 1120, and the substrate 1130. There is only a single die, namely the die 1110. As discussed above, the stack of die, interposer, and substrate is not the same as a stack of dies or stacked dies which include a number of dies.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Vergegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." Richardson v. Suzuki Motor

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Co., 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). Since the Examiner failed to show that Pasch teaches or discloses any one of the above elements, the rejection under 35 U.S.C. §102 is improper.

Therefore, Applicants believe that independent claims 9 and 17 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicants respectfully request the rejection under 35 U.S.C. §102(b) be withdrawn.

Conclusion

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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